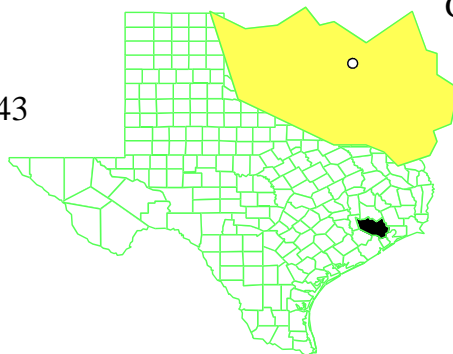


NORTH CAVALCADE STREET TEXAS

EPA ID# TXD980873343

Site ID: 0602956



EPA REGION 6
CONGRESSIONAL DISTRICT 18

Harris County
Houston

Updated: July 7, 2003

Site Description

- Location:**
- Northeast of intersection of Cavalcade & Maury Streets, about one mile southwest of the intersection of Loop 610 North & U.S. 59, Houston, Harris County, Texas.
- Population:**
- Approximately 50,000 plus urban area.
- Setting:**
- The nearest residence is 200 feet to west of the site.
 - The facility is situated in a industrial/commercial area, with a warehouse and metal casting shop on-site.
 - Of the 23-acre site, the original wood preserving operation covered about nine acres; all wood-treating facilities were removed in early 1960's.
- Hydrogeology:**
- Subsurface geology consists of interbedded clays, silts and sands of the Beaumont formation, with a piezometric level about four feet below surface.
 - Two primary aquifers underlay the site, the Chicot and the Evangeline. The Evangeline is the principal ground water source in the area and is isolated from surface recharge from this site.

Current Site Strategy

- The objective of this site cleanup is to protect human health and the environment by controlling the migration of shallow ground water contaminants and/or eliminate the potential to contaminate deeper aquifers, and if possible restore the shallow ground water to a potential future beneficial use. In addition a second objective is to remediate contaminated surface soils so that they no longer pose a dermal contact or ingestion risk. The Texas Commission on Environmental Quality (TCEQ) is the lead agency in managing the contracts to remediate ground water and soils. The original plan to pump and treat contaminated ground water was not very successful so the TCEQ conducted a ground water fate and transport study to determine the risk posed by contaminated ground water. EPA and TCEQ used the results to redesign and modify the original groundwater pump and treat system. The modified treatment system was placed in operation in August 2001. Shaw Environmental continues to optimize the treatment system to handle increased volumes of ground water and to more efficiently separate out the Dense Non-Aqueous Phase Liquid

(DNAPL) phase prior to treatment. The system has been upgraded to a continuous mode of operation from the original batch process.

- Region 6 and the TCEQ are evaluating field data which would indicate that the contaminants have migrated to a deeper sand, approximately 30 feet below ground surface. The remedial approach and objectives of the 1988 Record of Decision may not be adequate to address this additional volume; the current ground water pump and treat system does not include this deeper zone. EPA Region 6 and TCEQ are planning additional field work in September 2003 to provide the information necessary to determine if the current remedy is still protective.
- In addition, efforts to bioremediate the contaminated soils were discontinued in August 1998 due to the inability of the remedial method to reach the 30 mg/kg cleanup goal for carcinogenic polycyclic aromatic hydrocarbons (cPAHs). The soils were consolidated into a temporary treatment cell and covered with an impermeable liner awaiting final disposition by EPA and TCEQ. A Detailed Analysis Technical Memorandum (December 2002) has been drafted to support the development and analysis of remedial alternatives in the Feasibility Study (FS). The FS has been temporarily delayed pending further characterization of the ground water plume. (See "Present Status and Issues" below.)

Wastes and Volumes

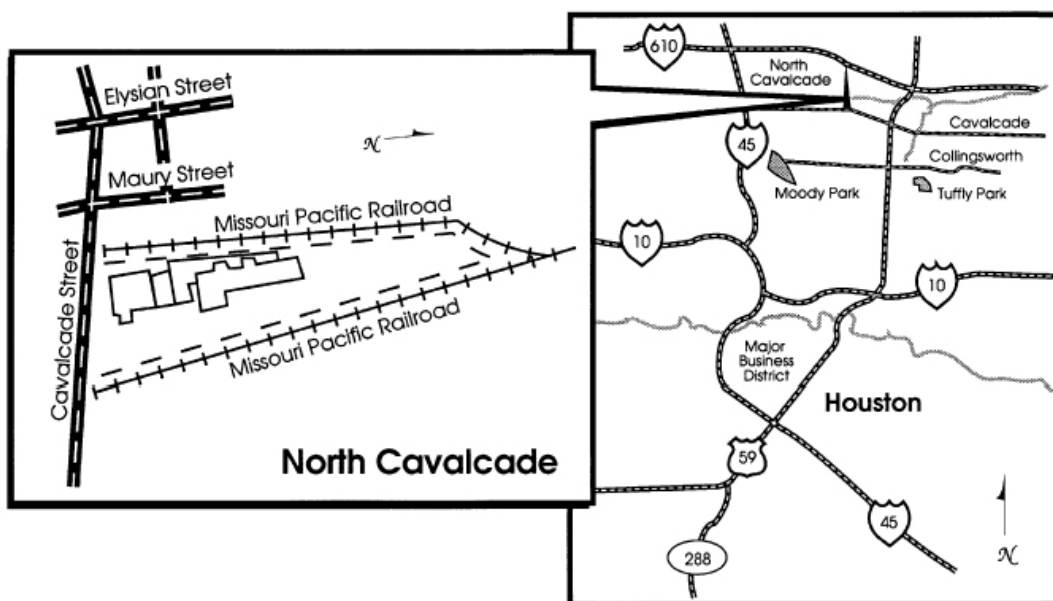
- The pollutant at the North Cavalcade site is creosote, and its related constituents, in both soil and ground water. Detectable constituents include polycyclic aromatic hydrocarbons (PAHs), carcinogenic polycyclic aromatic hydrocarbons (cPAHs), benzene, toluene, xylene, ethylbenzene, and metals. [Cleanup criteria is based on final concentrations expected for cPAHs (soils) and benzene (ground water)] Estimated volumes of contaminated soil are 10,000 cubic yards and 11.5 million gallons of contaminated ground water.

Site Assessment and Ranking

NPL LISTING HISTORY

Site HRS Score: 37.08
Proposed Date: 10/05/84
Final Date: 6/10/86
NPL Update: No. 2

Site Map and Diagram



The Remediation Process

Site History:

- In 1946, the site was developed for wood treating by Leon Aron (Houston Creosoting Co., Inc.), and operated until a bank foreclosed in 1961.
- The property was vacant until early 1970s, and two warehouses built by 1980.
- The site is presently comprised of various land tracts currently separately owned by Coastal Casting Company, the Eichenhour family and the Dover family.

Health Considerations:

- Soil and shallow groundwater are contaminated.
- Contaminated soils are stockpiled and covered pending final remediation.
- The nearest water well (industrial use) is located 1,500 ft. up gradient from the site. However, the shallowest water-bearing unit beneath the site is not currently being used as a water source. City of Houston water wells are principally screened in the Evangeline Aquifer about 1900 feet deep and the nearest well is about one mile away, up-gradient to the N. Cavalcade site.

Current Site Strategy:

- The objective of this site cleanup is to protect human health and the environment. The objective is being accomplished by:
 - Control of migration of shallow ground water contamination;
 - Reduction and/or prevention of deeper aquifer contamination;
 - Elimination of the source of ground water contamination by remediating contaminated soil and removing any free-flowing products.

Record of Decision

Signed: June 28, 1988

The 1988 Record of Decision selected remedy included biological degradation of soil contaminants, and the extraction and treatment of ground water, using oil/water separation and carbon absorption. This remedy provides protection for humans from unhealthy exposures to contaminated soil and ground water.

On August 8, 1994 EPA approved an "Explanation of Significant Differences (ESD)" to raise the soil cleanup criteria for carcinogenic polycyclic hydrocarbons (cPAHs) from 1 to 30 parts per million (ppm). The cleanup level was set at 30 ppm after a 1992 field pilot failed to demonstrate that bioremediation would reduce the cPAH concentration to below 1 ppm. As explained in the ESD, the 30 ppm cleanup level for soils will continue to meet or exceed the human health protection objective of the 1988 decision.

The first five-year remedy assessment was completed July 8, 1998. The second five-year review is underway for both soil and ground water remedies and is targeted for completion by July 2003.

Other Remedies Considered

Reason Not Chosen

- | | |
|--------------------------|--------------------------------------|
| 1. "No Action" | Human health not protected |
| 2. On-Site Landfill | Contaminants not destroyed |
| 3. On-Site Incineration | No increased benefit and more costly |
| 4. In Situ Soil Flushing | No increased benefit and more costly |

Enforcement

- No viable responsible parties have been found.

Community Involvement

- Community Involvement Plan: Developed 3/85, Revised 5/88, 2/89, and 12/92
- Open houses and workshops: 9/85, 12/92, 11/93, 4/94, 10/94
- Proposed Plan Fact Sheet: 4/88
- Public Meeting: 5/88
- ROD Fact Sheet: 7/88
- Fact Sheets: 8/85, 4/87, 7/87, 4/88, 10/88, 4/90 (TWC), 12/90 (TWC), and 6/91 (TWC), 4/94
- Citizens on site mailing list: 80
- Constituency Interest: No formal citizen groups or organizations, generally a low profile site.
- Some demand exists for Spanish translations of fact sheets and informational materials.
- Site Repository: Houston Central Library, Texas & Local History Division, Julia Idison Building, 500 McKinney Street, Houston, TX 77002

Technical Assistance Grant

- Availability Notice: 4/89
- Letters of Intent Received: 1. LIFT Endowment Fund, Inc. - 2/8/90 (withdrawn 8/20/90)
- Final Application Received: North & South Cavalcade St. Group 12/93 and 9/94
- Grant Award: Applications denied
- Current Status: No TAG
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Contacts

- **Remedial Project Manager:** Camille Hueni (EPA) 214-665-2231, Mail Code: 6SF-AP
- **State Contact:** (TCEQ) Ground Water Treatment System: Alvie Nichols, 512-239-2439 Mail Code 143
- **State Contact:** (TCEQ) Ground Water Characterization: Marilyn Long, 512-239-0761, Mail Code 143
- **State Contact:** (TCEQ) Soils: Dan Switek 512-239-4132 Mail Code 143
- **Community Involvement:** Camille Hueni (EPA) 214-665-2231, Mail Code: 6SF-AP
- **Attorney:** Joseph Compton (EPA) 214-665-8506, Mail Code: 6RC-S
- **State Coordinator:** Karen Bond 214-665-6682, Mail Code: 6SF-AP
- **Contractors:** Shaw Environmental & Infrastructure, Inc. (Ground Water Treatment and Remedial Design; Treatment Plant Operations)
David B. Stephens & Associates, Inc. (Soil Feasibility Study); further action on soils has been temporarily delayed pending additional work on the ground water operable unit.

EPA Regional Public Liaison: Arnold Ondarza (303) 312-6777

- **Toll Free Number:** 1-800-533-3508

Present Status and Issues

- Operable Unit 1, Groundwater
 - The ground water pump and treat system was suspended in December 1995, due in part to problems handling the dense non-aqueous phase liquid (DNAPL) volumes. Foster Wheeler began construction in June 2000 to modify the ground water system to more effectively separate out the dense non-aqueous phase liquids extracted and treat the remaining ground water. A modified ground water treatment system was installed and placed in service in August 2001. Shaw Environmental & Infrastructure is the current treatment system operator, under contract to the TCEQ. Shaw has optimized the system to treat the ground water in continuous flow mode and to treat larger volumes of ground water.
 - In August 2000, Foster Wheeler completed a supplemental groundwater field investigation which indicated DNAPL in both the shallow aquifer and the intermediate sand aquifer (to approximately 25 feet below ground surface), and estimated volumes of DNAPL source in both zones.
 - The Texas Commission on Environmental Quality (TCEQ) conducted a pump test in November-December, 2002, to further determine the intermediate aquifer conditions and recovery rates for the DNAPL. Additional field work is being planned for September 2003 to further define DNAPL distribution and extent of contamination for the intermediate sand aquifer. EPA and TCEQ will use that information to determine if the existing remedy, under the 1988 ROD, is protective and if those remedial objectives are still applicable.
 - The Harris County Toll Road Authority is extending the Hardy Toll Road south from Loop 610, along the railroad track right-of-way at the western boundary of the site. TCEQ is

coordinating the September 2003 field mobilization with the Authority and will share sampling results along the western (down-gradient direction) boundary as that information becomes available.

- Operable Unit 2, Soil

- In August 1998, the soil biotreatment phase was discontinued, at the contractor's request, due to the method's inability to reach those cleanup standards proposed for cPAHs in the 1994 "Explanation of Significant Differences." The contaminated soil was consolidated at the north end of the site and covered with a temporary cover.
- TCEQ completed a supplemental remedial investigation to support a feasibility study exploring final remedial options for the contaminated soil in 2001. Work on the Feasibility Study has been temporarily suspended pending the additional ground water characterization scheduled for September 2003.

- Second Five-Year Review

EPA has initiated the second Five-Year Review to assess the protectiveness of the current ground water and soil remedies. The first Five-Year Review, completed in 1998, found the remedies to be protective of both human health and the environment. Completion of the second Review is targeted for July 2003. results of the second Five-Year Review will be made available to the public at the following information repository:

Houston Central Library
Government Documents Area
500 McKinney Street
Houston, Texas 77002

Questions concerning the North Cavalcade Street Superfund site should be directed to Camille Hueni at (214) 665-2231 or 1-800-533-3509 (toll-free). A summary of findings from the second Five-Year Review will also be posted at this site.

Schedule

- **Waste LAN Schedule Milestones**

- | | |
|------------------------------------|------|
| ● Amend soil remedy | 2003 |
| ● Next 5Yr Remedy Assessment | 2003 |
| ● Operation and Maintenance Begins | 2008 |
| ● Close Out Report | 2010 |
| ● NPL Deletion | 2011 |

Benefits

- 10,000 - 12,000 cubic yards of contaminated soil will be treated.
 - Soil Cleanup Criteria
 - cPAH 30 ppm*
 - Benzene 0.04 ppm
- 11.5 million gallons of contaminated water have been treated to date.
 - Groundwater Cleanup Criteria
 - cPAH Non-Detect*
 - Benzene 5 ppb (parts per billion)
- 21 acres will eventually be returned to potential industrial use.

* cPAH cleanup criteria changed per July 1994 "Explanation of Significant Differences."

* Detection limit set as 5 ppb.